

Carolinian Trail

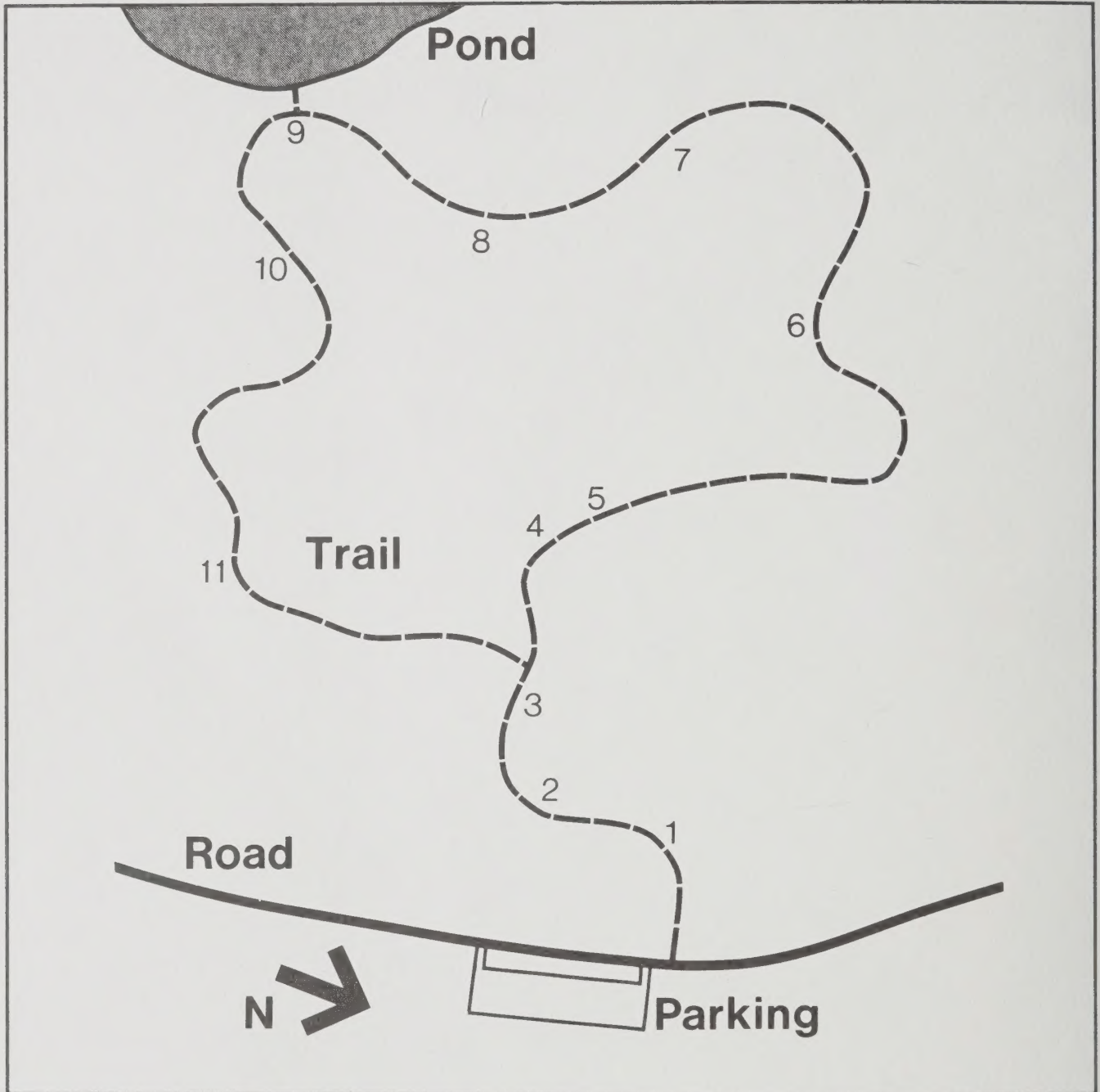
Exploring Canada's
deep south



Carolinian Trail

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Illustrations by Peter Burke



Welcome to the Carolinian Trail. You're about to enter a piece of Canada's deep south. The numbered sections in this guide correspond to numbered posts along the trail. Each stop will explore one particular aspect of the trail's uniquely "southern" flavour.

Plan at least one hour to explore this 1.8 kilometre long trail. Stairways, benches and viewing platforms make contemplative nature observation an enjoyable activity on the Carolinian Trail. Take your time - awaken your curiosity, for as you walk...

"Nature's peace will flow into you as sunshine flows into trees."

19th Century Naturalist John Muir

Post 1 North Meets South

In a nation known as the "True North" the idea of a nature trail featuring exotic southern flora and fauna may seem a little puzzling. After all Pinery's namesake, its pines, are a powerful symbol of the north country. No palm trees line our beaches. For much of the year, swimming at Pinery would be a chilling experience. Despite this, Pinery Provincial Park can legitimately claim its southern affinities.

The vegetation surrounding this platform displays the phenomenon known as "north meets south". Evergreens typical of northern regions stand alongside broad leaved trees generally found far to the south. At this station, Red Pine and Chinquapin Oak grow side by side. Red Pine, a northern conifer, extends its range well to the north of the Great Lakes. Chinquapin Oak on the other hand can be found as far south as Florida.



The Chinquapin Oak is a "southern" element of Pinery's forest. Grey and Southern Flying Squirrels eat acorns produced by these and other oaks.

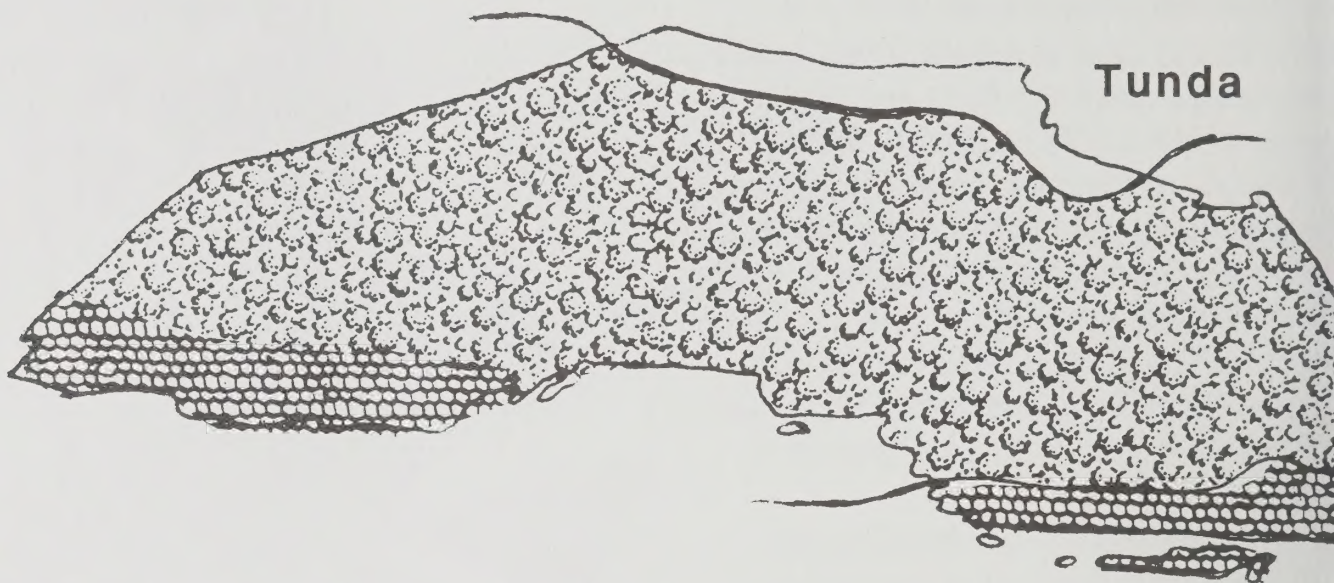


Red Pines and Red Squirrels lend a "northern" flavour to parts of Pinery.

Both of these trees could be called indicator species. Indicator species are eye-catching, important members of a given region's natural community. Indicator plants allow us to predict what animals will be found there. Pinery's Red Pines predict the presence of the cone-eating Red Squirrel. Pinery's Oaks predict the presence of Grey and Southern Flying Squirrels. All of these squirrels call Pinery home.

By simply looking at the trees visible from this platform, it's apparent that Pinery's forests are a mosaic of northern and southern elements. The Carolinian Trail's indicator species will soon reveal whether northern or southern climes dominate at Pinery.

Post 2 Canada's "Banana Belt"



**Great Lakes/St Lawrence
Forest Region**

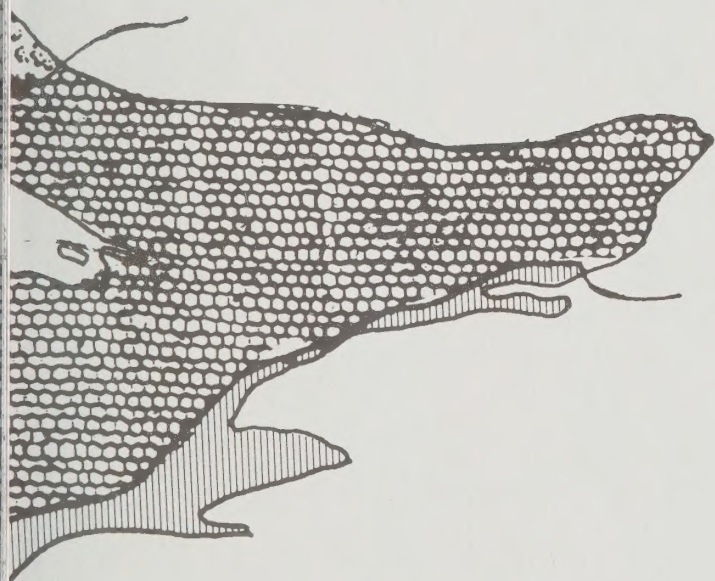
**Carolinian
Forest Region**

The province of Ontario is larger than the countries of France, England, and Germany combined. In such a huge area it's not surprising that several distinct life zones occur. To the north a belt of cool, dark green coniferous forest broods over the landscape. In central Ontario, a varied mix of evergreen and broad leaf trees thrive. Fields, pastures and orchards add further to central Ontario's quilt-like mosaic. South of a line drawn from Toronto to Grand Bend lies Ontario's true arboreal treasure - the Carolinian Forest. Sometimes called Canada's "banana belt" the Carolinian region is blessed with a remarkably mild climate. It's no coincidence that this zone is surrounded on three sides by the waters of Lake Huron, Erie and Ontario. Extended growing seasons occur near these huge lakes since summer's warmth is released by their water well into the autumn. Grand Bend's frost free period for example is two weeks longer than the land locked city of

Strathroy. Although winter temperatures often drop below freezing, shoreline areas also rarely experience the extreme low temperatures common inland.

While the Carolinian zone has many indicator species - animals as well as plants, it is from the trees that the term "Carolinian" was derived. Initially this term was used to describe the coastal forests of North and South Carolina. In his 1898 classification of North American life zones, C.H. Merriam included extreme southern Ontario as part of the Carolinian zone. Pinery's Carolinian forests are the northernmost fringe of a vast deciduous forest that stretches thousands of kilometres to the south.

Boreal Forest Region

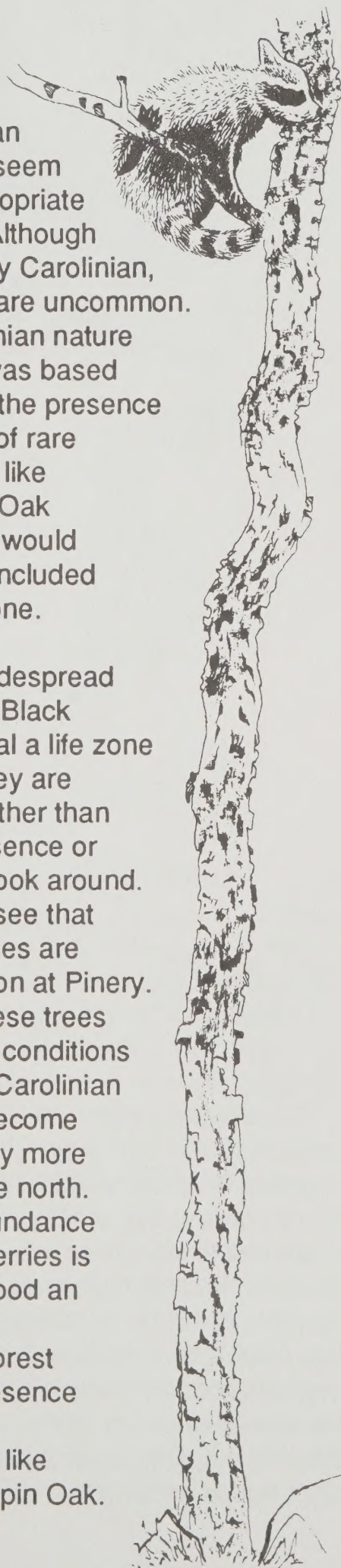


Post 3 Black and White?

In nature, many things refuse to fit into the neat categories that humans assign to them. Take for example the Black Cherry found at this post. Although often considered an indicator of the Carolinian zone, this tree can live as far north as Ottawa. Since it does grow north of the Carolinian zone, is Black Cherry really a valid indicator of this forest type?

Chinquapin Oak, which cannot grow outside the Carolinian zone might seem a more appropriate indicator. Although unmistakably Carolinian, these trees are uncommon. If the Carolinian nature of an area was based solely upon the presence or absence of rare southerners like Chinquapin Oak many areas would miss being included in this life zone.

Hardy, widespread species like Black Cherry reveal a life zone by where they are abundant rather than by their presence or absence. Look around. You'll soon see that Black Cherries are quite common at Pinery. Although these trees can tolerate conditions outside the Carolinian zone they become progressively more scarce to the north. Pinery's abundance of Black Cherries is almost as good an indication of Carolinian forest as is the presence of sensitive southerners like the Chinquapin Oak.



Post 4 Nature's Apartment Building



You are currently perched atop an ancient sand dune overlooking the Ausable River floodplain. While there's little water on the ground now, this was not always so. Once, the Ausable River lowland was inundated by silt laden water each spring. In the late 1800's two major water diversion projects halted this flooding. Although the floodwaters are now gone, their influence is still clearly seen in Pinery's floodplain forest.

The towering trees visible from this platform are amongst the tallest in the park. The giant to your right is a Tulip-tree. The other giant is a Basswood. Both of these trees owe their huge size to the rich soil they're rooted in. Floodplains are very fertile. Nutrient laden silt, carried by spring floods from surrounding areas, was deposited annually on these lowlands. Although Pinery's floodplain no longer floods, its soil remains very fertile.



Post 5 **Scarlet Red and ...**

A quick glance beneath the forest canopy reveals that a floodplain forest consists of more than just towering hardwoods. Scattered beneath the canopy you can see many smaller trees and shrubs. Some are simply waiting to grow towards any hole which might develop in the canopy. Others are adapted to live in the shady understory. In some respects, the floodplain forest is nature's apartment building. At the next post we'll take a closer look at this apartment's top floor and some of its tenants.

You are now looking into what could be called the "penthouse" of the bird world. Like publicity shy celebrities, some of Pinery's most colourful birds have retired to this private retreat. Listen for a moment. Do you hear a bird that sounds like a Robin suffering from a sore throat?

Early each summer a brilliant male Scarlet Tanager often flits through the tree tops singing its hoarse song near this platform. Sometimes called the "Firebird", this dazzling red and black beauty seems more suited to its South American wintering grounds than Pinery's floodplain forests.

... Cerulean Blue



Despite their exotic appearance, Scarlet Tanagers are actually quite common at Pinery. These brilliant birds find the Carolinian forest's towering hardwoods attractive as breeding habitat. Here, like many other birds that live in the forest canopy, Scarlet Tanagers are far

more common than is generally believed.

The Scarlet Tanager shares its tree top territory with another jewel of the Carolinian forest. Named after its deep blue colour, the Cerulean Warbler is occasionally seen flitting through the canopy along the Ausable floodplain. This inconspicuous bird is rarely seen as it spends most of its time gleaning insects from the tree-tops.

From this platform you are privileged to an unusual view of the Carolinian forest. You're looking into the dense canopy that normally towers over your head. As you walk the rest of the Carolinian Trail be sure to direct your attention upwards every now and then. If you do, you may spy some of the feathered celebrities that live up in the penthouse of Canada's deep south.



Post 6 Trouble on the Bottom Floor

Each shrub, bush and wildflower around you provides food and shelter to the many animal inhabitants found on the bottom floor of nature's apartment. Unfortunately, the actions of one tenant are profoundly effecting the fortunes of the entire community.

Researchers who studied the Carolinian Trail's vegetation in the early 1970's reported that the understory was so dense with shrubs that walking was both difficult and unpleasant. Today, a quick glance reveals that radical changes have occurred. While nibbling on tender shoots, one of the Carolinian forest's most popular creatures, the White-tailed Deer is wreaking havoc.



The elimination of predators, especially the Timber Wolf has allowed deer to proliferate within the Carolinian zone. It's quite likely that more White-tail Deer now roam North America than when Columbus arrived. Pinery's herd has certainly reached an unprecedented size. With so many mouths to feed it's not surprising that the quantity and diversity of vegetation has declined substantially. Along the Carolinian Trail many beautiful wildflowers including Red Trilliums, Showy and Yellow Lady-Slippers are no longer seen. Nipped off at ground level, young trees and shrubs are now also rare along this trail.

Although deer feed on a wide range of vegetation many other creatures are more restricted in diet. For example, the caterpillar of Ontario's largest butterfly, the Giant Swallowtail, feeds only on a few plants. At Pinery, the caterpillar of this rare Carolinian butterfly eats Prickly Ash. Deer are also fond of Prickly Ash. Throughout the 1980's a large colony of Prickly Ash found near this post was severely reduced by browsing deer. While deer can switch to other food sources if preferred species become scarce, creatures like the Giant Swallowtail cannot.

Trouble seems to be brewing in Pinery's Carolinian forest. Many plants and the animals they support are threatened by an army of hungry deer. Is it possible that this level of nature's apartment will someday be reserved for deer only?

Post 7 A Crown of Blooms

Just as twisted pines indicate a harsh environment, cathedral-like groves of deciduous trees indicate favourable growing conditions. You're now standing at the base of an impressive Tulip-tree. As eastern North America's largest tree, this species is an ideal symbol of the rich Carolinian lifezone. It is also a symbol of one on nature's great success stories.

Two hundred million years ago needle-bearing conifers dominated the forests of the world. More species of spruce, pine and fir lived then than have been seen since. A fierce struggle between the needle-leaved and the more recently developed broad-leaved trees has been waged over the past one hundred million years. Wherever favourable growing conditions occur the broad-leaved trees have prevailed. Conifers now thrive only in low quality habitats like mountain-tops, cold sub-arctic regions and dry places. A quick glance around reveals that Carolinian forests are dominated by broad-leaved, deciduous trees.

Held high overhead the Tulip-tree's greenish-orange blooms decorate the Carolinian forest's canopy late each



...and these axnir...
likened to an expensive crown worn by a king or queen. Instead of bearing gold and diamonds, the Tulip-tree bears the food of honey bees - nectar.



Nectar is very expensive for a tree to produce since it contains large quantities of sugar. Tulip-tree blooms contain copious quantities of nectar solely to lure honey bees into the tree tops. Flying from tree to tree honey bees provide pollination services more typically carried out by the wind.

Only a tree living in ideal conditions can afford to lavish resources on nectar production. It's not surprising then to note that insect pollinated trees are rare north of the Carolinian lifezone. Decked out in a crown of blooms the Tulip-tree and its insect helpers are an unmistakable sign of the rich Carolinian lifezone.

Post 8 Nature's Freeloader

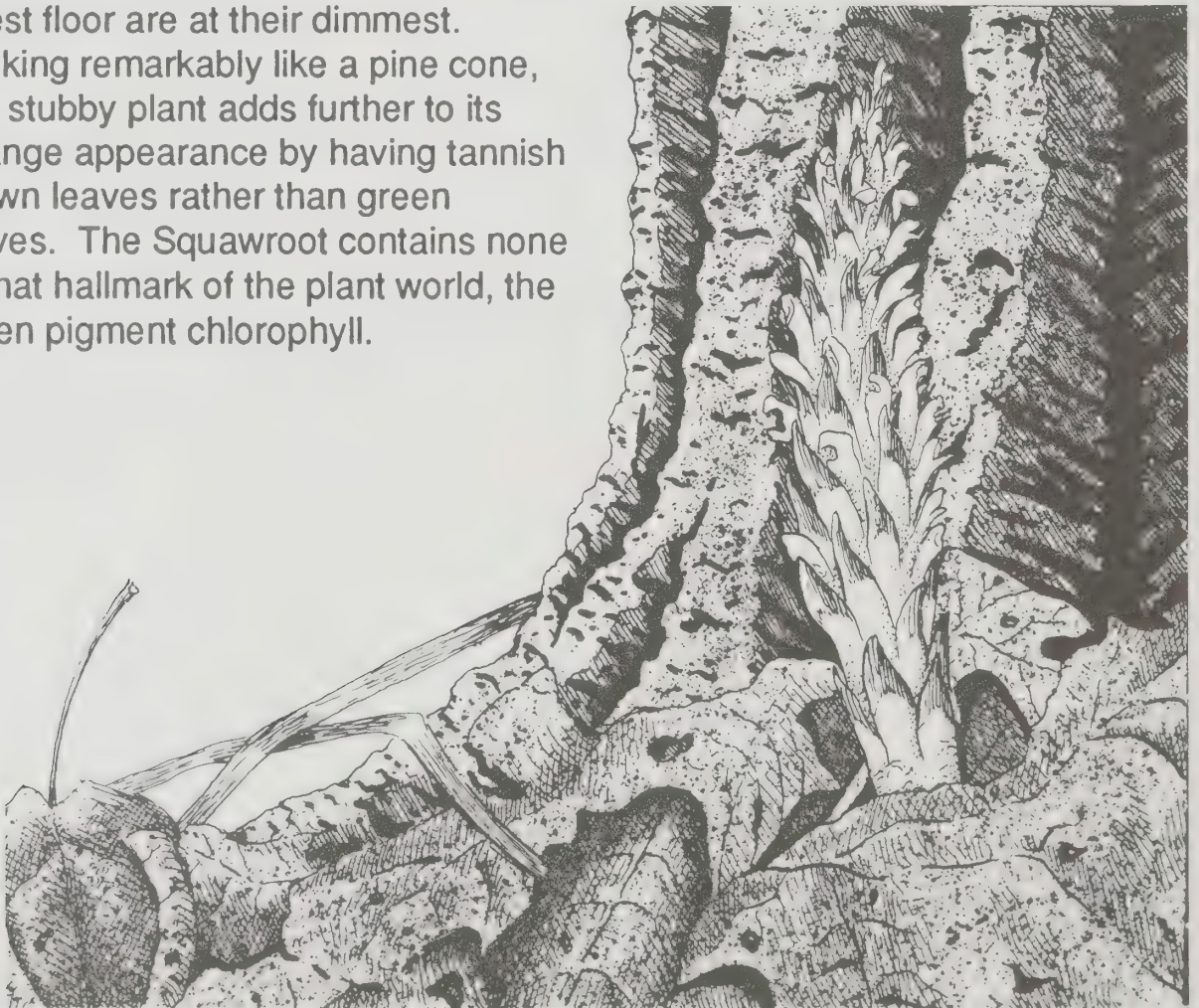
Giant trees like this Tulip-tree represent an impressive concentration of nature's resources and energy. Rich soil, ample rainfall, bright sunshine and long growing seasons were all needed to produce this tree.

Towering Carolinian trees are efficient solar collectors. What little light manages to pass through their canopy is further filtered by saplings and understory shrubs before it finally reaches the forest floor. Forest wildflowers have been forced to adapt to these low light conditions. Most burst forth in growth and bloom in the early spring before the towering hardwoods leaf out. Others have developed more bizarre strategies.

Defying botanical sense, the Squawroot blooms in the early summer when light conditions on the forest floor are at their dimmest. Looking remarkably like a pine cone, this stubby plant adds further to its strange appearance by having tannish brown leaves rather than green leaves. The Squawroot contains none of that hallmark of the plant world, the green pigment chlorophyll.

Squawroot thrives on the Carolinian forest's light-starved ground level by parasitizing the very trees which are limiting the available light. As a member of an unusual plant group known as the "cancer-roots", Squawroot is attached to tree roots by knob-like swellings. Through these swellings the devious Squawroot siphons off some of its host's energy.

Although this lifestyle may seem surprising at first, a little reflection may cause you to think differently. Wherever great concentrations of wealth occur, be it money or natural resources, freeloaders are also likely to be found. Squawroot, the freeloader of the Carolinian forest, is living a lifestyle that's sometimes all too familiar!



Squawroot, by stealing energy from trees is the "freeloader" of the Carolinian forest.

Post 9 The Duck of Many Names



Wood Duck, Carolina Duck, Tree Duck, or Acorn Duck?

Take a seat. The Carolinian forest often shows its best side at the water's edge. On a sunny day you may spy turtles sunning themselves on floating logs. Five minutes of quiet observation will likely produce at least one bright blue, Belted Kingfisher. If you're really lucky, Pinery's "duck of many names" could splash down in front of you.

Typically called the Wood Duck, the "duck of many names" has earned its various titles. Although they can live elsewhere, Wood Ducks are most at home in Carolinian swamps and bottomlands. It's not surprising then that this beautiful bird was once called the "Carolina Duck". The Wood Duck's other names may not appear so sensible at first glance.

Even though we typically associate ducks with ponds and marshes the Wood Duck is sometimes called the

"Tree Duck". Much to the astonishment of human observers, this unusual bird performs the very unduck like behaviour of landing - in trees! Anchored by sharp claws, the Tree Duck also nests in hollow trees, sometimes quite far from the nearest water. Newly hatched "Tree" ducklings, must throw themselves out of their nest hole before they can begin their hike overland to water.

Adult Wood Ducks sometimes also wander deep into the forest. While on these treks they earn another of the Wood Duck's many titles. Like Wild Turkeys with webbed feet, the "Acorn Duck" forages for acorns and hickory nuts. As many as fifty-six acorns have been found in a single Wood Duck.

Wood Duck, Carolina Duck, Tree Duck, or Acorn Duck? Take your pick, for after all the "duck of many names" is truly a duck of all trades!

Post 10 Villainous Vines?

An abundance of rope-like vines gives the Carolinian forest an almost tropical appearance. In some places, only a little imagination is required to picture a Tarzan-like character swinging through the trees. Such a creature does exist at Pinery Provincial Park and, believe it or not, this creature is quite common!

Pinery's "Tarzan", is the Southern Flying Squirrel. This Chipmunk sized squirrel is rarely seen since it spends the daylight hours curled up in a hollow tree. At night, it sails through Pinery's skies with a grace that even Tarzan would envy. Held aloft by a flap of skin stretched between the fore and hind legs the Southern Flying Squirrel can glide as far as 50 meters (150 feet) in a single leap.

Flying Squirrels are often the victim of "good" woodlot management. In order increase wood production, dead and dying trees are removed from wooded areas. These rotting, hollow trees are used by Flying Squirrels for den sites. In winter, as many as fifty Flying Squirrels have been found huddled together in a single large hollow tree!

To human eyes, dead and dying trees are a sign of an unhealthy forest. In particular, the sight of a helpless tree overwhelmed by a mass of clinging vines draws the sympathies of human observers. A Southern Flying Squirrel would view things differently. Those "villainous" vines produce berries which feed squirrels and birds alike. Dead and dying trees also provide homes and wintering sites for these nocturnal acrobats. Perhaps then it's a good thing that the occasional tree is killed by a climbing grape or Virginia Creeper vine?





Post 11 In the Balance?

You have now almost completed the Carolinian Trail. As you walk the remainder take a moment to reflect upon what you've discovered. Standing beneath a towering Tulip-tree it's hard not to appreciate this region's mild climate and rich soil. These conditions did not go unnoticed by early European settlers. Indeed, southwestern Ontario's soils were amongst the first in Canada to come into cultivation. The agricultural lands of this region are so productive that now very little of the original forest remains uncleared. The once boundless forest has been reduced to a scattered collection of woodlots. Less than ten percent of the Carolinian "forest" remains tree covered. Even these small wooded areas are threatened.

The fate Canada's richest life zone now hangs in the balance. Will our children be able to marvel beneath a towering Tulip-tree? Will Southern Flying Squirrels continue to sail mysteriously through Canada's night skies? Only the support of conservation minded people will assure the future of Canada's Carolinian forest. Can you help?

Post 12

If you wish to keep this guide, please pay at the introductory sign. If not please place it in the box at this post so that others may use it later. Your payment covers the cost of the guide and supports the projects of The Friends of Pinery Park. Thank you.



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OTHER

PINERY TRAILS This is just one of nine trails maintained in Pinery Provincial Park. Each trail has been developed to introduce you to some aspect of Pinery's natural or cultural history and has either interpretive sign posts or a guide similar to this one. The other eight trails are listed below.

RIVERSIDE TRAIL is a 1 km gently rolling trail that meanders along the banks of the Old Ausable River Channel. This trail is wheelchair accessible and the guide describes the history and ecology of the Ausable River.

BITTERSWEET TRAIL is 1.5 km long and passes through a mature oak-pine forest to the banks of the Old Ausable River Channel. The guide for this trail offers insight into the ecology of the Oak/Pine Forest

HICKORY TRAIL is 1 km and passes through stands of shagbark hickory and red oak along the banks of the Old Ausable River Channel.

WILDERNESS TRAIL is a 3 km trail that will take you through some of the more remote forests in the park and then across the dunes to a viewing platform overlooking Lake Huron.

LOOKOUT TRAIL is a 1 km trail that travels up one of the largest dunes in the park to a spectacular view of the Thedford Bog.

CEDAR TRAIL is 2.3 km long wheelchair accessible trail and passes through Pinery's rare and expansive oak savanna community.

PINE TRAIL is .8 km in length and will lead you through stands of red pine and under towering oaks.

NIPISSING TRAIL is 2 km long with a substantial climb to the top of the highest dune ridge in the park. Both the lake and the Thedford Bog can be seen from the lookout on this trail.

All trails are self guided. Interpretive brochures for the Bittersweet, Riverside and Carolinian Trail are available at the trail entrance or the Visitor Centre. All other trails have interpretive sign-posts to help you discover Pinery's natural history. The riding of bicycles on any Pinery Trail is prohibited by law at all times.

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